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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/688,377

10/17/2003

Timothy J. Wilson

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2221

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7590

11/14/2005

MOTOROLA, INC  
INTELLECTUAL PROPERTY SECTION  
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EXAMINER

MEHRA, INDER P

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/688,377	<b>Applicant(s)</b> WILSON, TIMOTHY J.	
	<b>Examiner</b> Inder P. Mehra	<b>Art Unit</b> 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,9-11,13-19,21-24 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 6-8,12,20 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to amendment dated: 8/10/05. Based on this amendment, claims 28-30 have been added.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 9-10, 13-16, 18-19, 21-24, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kallio** (US 2002/0147008), in view of **Palmer et al** (US Patent Application publication No. 2005/0096045), hereinafter, Palmer.

1. For claims 1, 28 and 30, Kallio discloses a method comprising
  - providing at least one threshold value is anticipated by "threshold comparison" disclosed on page 4, paragraph 36, lines 3-9;
  - determining a quality of service for a wireless communication link with at least one access point that comprises a part of a wireless local area network is anticipated by "WLAN- a-level" disclosed on page 4, paragraph 36, lines 1-15 ;
  - determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by "WLAN- rx-level (transmission level) threshold comparison" disclosed on page 4, paragraph 36, lines 1-15.

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Kaillio does not disclose expressly the following limitations, which are disclosed expressly by Palmer, as follows:

- determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time, **as recited by claim 30 also**, (refer to fig. 3, and paragraphs 0015, 0024, 0030 and 0030).

It would have been obvious to the person of ordinary skill in the art at the time of the invention to use the capability of “determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time”, as taught by Palmer. The capability can be implemented by communication device. The motivation for using this capability is to obviate future traffic congestion, and improve quality of service.

For claim 2, wherein determining a quality of service for a wireless communication link with at least one access point that comprises a part of wireless local area network is anticipated by "WLAN- rx-level" disclosed on page 4, paragraph 36, lines 1-15, comprises determining a quality of service for each wireless communication link with a plurality of access point that comprise a part of wireless local area network is anticipated by "WLAN- rx-level" disclosed by Kaillio on page 4, paragraph 36, lines 1-15,

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For claims 3 and 29, wherein determining a quality of service for a wireless communication link with at least one access point that comprises a pad of wireless local area network comprises determining quality of service values for a wireless communication link with one access point over a sampling period of time is anticipated by "MS 150 measures signal levels of GMN link at all times" disclosed by Kaillio on page 5, paragraph 42, line 5.

For claim 4, wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises, using the plurality of quality of service values to estimate a projected quality of service at a predetermined future time is anticipated by "WLAN rx-level (transmission level may contain two threshold values" disclosed by Kaillio on page 5, paragraph 48, lines 1-8.

For claim 5, wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises, using the plurality of quality of service values to extrapolate projected quality of service at the predetermined future time is anticipated by "WLAN a-level drops below limit" disclosed by Kaillio on page 5, paragraph 42, line 6.

For claim 9, further comprising providing 4 first signal when there is at least a predetermined likelihood that the quality of service will have at least the predetermined relationship with respect to the at-least one threshold value at predetermined time is anticipated by "if the WLAN Rx-level is higher than the upper threshold value disclosed on page 5, paragraph 48, lines 1-8.

For claim 10, when there is not at least a predetermined likelihood that the quality of service will have at least the predetermined relationship with respect to the at least one threshold value at predetermined future time, determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at least a second predetermined future time, which second predetermined future time is different than the predetermined future time is anticipated by "WLAN rx-level (transmission level) may contain two threshold values" disclosed on page 5, paragraph 48, lines 1-8.

For claim 13, method of claim 1, further comprising:

- providing a list that identifies at least one access point is anticipated by "mobile station receive information regarding WLAN radio" disclosed in page 3, paragraph 30, lines 5-8;
- using the list when determining the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a future time is anticipated by "based on receive signal level comparison with the threshold value mobile makes the decision to select a GPRS cell or a GSM cell" disclosed by Kaillio on page 4, paragraph 36, lines 1-15.

For claim 14, wherein using the list when determining the likelihood that the quality of

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service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises using the list to identify access points to be considered when determining the likelihood is anticipated by "measurement report calculated by the mobile station" disclosed by Kaillio in page 5, paragraph 48, lines 1-11.

For claim 15, further comprising receiving at least one parameter from an access point, and wherein determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises using at least one parameter when determining the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at predetermined future time is anticipated by " during the handover from WLAN to GSN network WLAN-rx-level threshold comparison takes place" disclosed by Kaillio on page 6, paragraph 53-lines 1-1 1-paragraph 54-lines 1-8.

For claim 16, wherein determining quality of service comprises determining a received signal strength value as corresponds to the wireless communication link is anticipated by "WLAN a-level threshold" disclosed by Kaillio on page 4, paragraph 36; lines 1-9.

Regarding claim 18, wherein determining a likelihood that a quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time comprises determining a probability that quality of service will have at least a predetermined relationship with respect to the at least one threshold values at a predetermined future time is anticipated by "WLAN-rx-level threshold comparison takes place in-order to select WLAN cell" disclosed by Kaillio on page 6, paragraph 53-lines 1-11-paragraph 54-lines 1-8.

For claim 19, wherein

- determining a quality of service for a wireless communication link comprises determining a quality of service for each of plurality of wireless communication link that comprise a part of wireless local area network is anticipated by "MS 150 measures WLAN signal levels at all time" disclosed by Kaillio on page 5, paragraph 42, line 5, and
- determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by "WLAN-rx-level (transmission level) threshold comparison" disclosed by Kaillio on page 4, paragraph 36, lines 1-15; comprises:
- estimating a likely future quality of service value for each of plurality of wireless communication links at future time is anticipated by "WLAN a-level (transmission level) may contain two threshold values" disclosed by Kaillio on page 5, paragraph 48, lines 1-8.

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- selecting which ever of likely future quality of service value represent a best quality of service relative to the other likely future quality of service values to provide a selected future quality of service value is anticipated by “using Rx-levels to monitor the quality of service” disclosed by Kaillio on page 4, paragraph 36, lines 1-15;
- using the selected future quality of service value to determine the likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at predetermined future time is anticipated by “comparing Rx-level with threshold value to make a decision regarding the future hand off” disclosed by Kaillio on page 4, paragraph 36, lines 1-15.

Kaillio does not disclose expressly the following limitations, which are disclosed expressly by Palmer, as follows:

- using selected future quality of service value to determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time, **as recited by claim 30 also**, (refer to fig. 3, and paragraphs 0015, 0024, 0030 and 0030).

It would have been obvious to the person of ordinary skill in the art at the time of the invention to use the capability of “determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time”, as taught by Palmer. The capability can be implemented by communication device. The motivation for using this capability is to obviate future traffic congestion, and improve quality of service.

For claim 21, Kaillio discloses a method to facilitate handing off wireless communication from a wireless local area network to wireless wide area network is anticipated by "seamless mobility between GSM network and WLAN network" disclosed on page 2, lines 7-23; comprising:

- monitoring wireless communication paths for at least some access points of the wireless local area network is anticipated by "MS 150 measures AMN signal levels at all time" disclosed by Kaillio on page 5, paragraph 42, line 5';
- determining a plurality of measured quality of service metrics over a sampling period for at least some of the monitored wireless communication paths is anticipated by "when GMN signal level drops below the threshold limit" disclosed on page 5, paragraph 42, line 6;
- for at least some of the monitored wireless communication paths, using the plurality of measured quality of service metrics to extrapolate likely future quality of service values is anticipated by "comparison the threshold value and the receive signal levels" disclosed on page 4, paragraph 36, lines 1-8;
- using the likely future quality of service values to determine a probability that at least one of the monitored wireless communication path will continue to provide viable wireless communication service is anticipated by "when the comparison between the threshold and receive signal level indicates that NLAN cell should be selected, mobile device continues to receive service from the WLAN cell"; disclosed on page 4, paragraph 36, lines 1-15;

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- using the probability to determine whether a wireless subscriber unit presently supporting a wireless local area network communication is likely to soon require handoff of that communication to the wireless wide area network is anticipated by "when WLAN signal level drops below the threshold limit signal that mobile should handoff to GSM network" disclosed on page 5, paragraph 42, line 6-9.

Kaillio does not disclose expressly the following limitations, which are disclosed expressly by Palmer, as follows:

- using selected future quality of service value to determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time, **as recited by claim 30 also**, (refer to fig. 3, and paragraphs 0015, 0024, 0030 and 0030).

It would have been obvious to the person of ordinary skill in the art at the time of the invention to use the capability of "determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time", as taught by Palmer. The capability can be implemented by communication device. The motivation for using this capability is to obviate future traffic congestion, and improve quality of service.

For claim 22, wherein monitoring wireless communication paths for at least some access point of wireless local area network comprises monitoring all the wireless communication paths that are received is anticipated by "MS 150 measures GLAN signal levels at all time" disclosed on page 5, paragraph 42, line 5.

For claim 23, wherein monitoring wireless communication path paths for at least some access points of wireless local area network comprises monitoring only selected wireless communication paths such that receivable wireless communication paths that are not selected are not monitored is anticipated by "paths are reported in the measurement report if there receive signal level is greater than the threshold" disclosed on page 5, paragraph 0046, line 1-15.

For claim 24, wherein monitoring wireless communication paths such that receivable wireless communication paths that are not selected are not monitored comprises:

- receiving information regarding access points is anticipated by "measurement report calculated by mobile station" disclosed page 5, ,paragraph 0046, lines 9-15;
- using the information regarding access points to identify selected wireless communication paths to monitor is anticipated by "reserved frequency number are assigned to the WMN and they are reported to the mobile in measurement reports" disclosed on page 5, paragraph 44, lines 1-15.

4. Claim 1 is also rejected under 35 U.S.C. 102(e) as being anticipated by Ibe (US 2004/0087307). Regarding claim 1, a method comprising

- Providing at least one threshold value is anticipated by is anticipated by "threshold value d" disclosed on page 2, paragraph 19, lines 3-6;

- Determining a quality of service for a wireless communication link with at least one access point that comprises a pad of a wireless local area network is anticipated by "mobile device has the capability to monitor signal quality by measuring the signal to noise ratio" disclosed on page 2, paragraph 19, lines 1-3;
- Determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time is anticipated by "when SNR drops to a cutoff value  $r > d$ , the system initiates the handoff with the objective of completing the handoff procedure before the SNR drops down to the threshold value  $d$ " disclosed on page 2, lines 7-10.

5. Claim 11, 26-27 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Kallio (US 2002/0147008) in view of **Palmer et al** (US Patent Application publication No. 2005/0096045), hereinafter, Palmer, further in view of Natarajan et al. (US 2004/0097230).

For claim 11, Kallio (US 2002/0147008) in view of Palmer teaches all the limitation of claim 10 (see 102 rejection for claim 10 above), except Kallio (US 2002/0147008) does not expressly disclose second predetermined future time is sooner than the predetermined future time.

Natarajan et al. (US 2004/0097230) discloses second predetermined time interval (TLwM) is sooner than the predetermined future time (TLd) (refer Fig.6 of Natarajan et al. (US 2004/0097230).

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At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of Kallio (US2002/0147008) by adding second predetermined future time is sooner than the predetermined future time of Natarajan et al. (US 2004/0097230). One in ordinary skill in art would have been motivated to do this to ensure handoff is completed before the link goes down (see page 4, paragraph 34, lines 1-5 of Natarajan et al. (US 2004/0097230)).

For claim 26, Kallio (US 2002/0147008) in view of Palmer teaches all the limitation of claim 10 (see 102 rejection for claim 10 above), except Kallio (US 2002/0147008) does not expressly disclose second future point in time that is closer in time than the first future point in time.

Natarajan et al. (US 2004/0097230) discloses second predetermined time interval (TLwM) is sooner than the predetermined future time (TLd) (refer Fig.6 of Natarajan et al. (US 2004/0097230)).

At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of Kallio (US 2002/0147008) by adding second predetermined future time is sooner than the predetermined future time of Natarajan et al. (US 2004/0097230). One in ordinary skill in art would have been motivated to do this to ensure handoff is completed before the link goes down (see page 4, paragraph 34, lines 1-5 of Natarajan et al. (US 2004/0097230)).

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For claim 27, wherein using the likely future quality of service values to determine a probability that at least one of the monitored wireless communication paths will continue to provide viable wireless communication service further comprises using the first and second likely future quality of service values to determine corresponding probabilities that at least one of the monitored wireless communication paths will continue to provide viable wireless communication service at the first future point in time and second future point in time is anticipated by "WLAN-receive signal levels may contain two threshold values to ensure that the mobile device is being serviced when within the wireless coverage area" disclosed by Kaillio on page 5, paragraph 48, lines 1-8.

6. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kallio (US 2002/0147008) in view of Palmer, as above, further in view of Jagadeesan et al (US 2005/0659500).

Kallio (US 2002/0147008) in view of Palmer teaches all the limitation of claim 17 (see 102 rejection for claim 16 above), except Kallio (US 2002/0147008) does not expressly disclose determining quality of service further comprises determining a link margin value as corresponds to the wireless communication link function, at least in part, of received signal strength value.

Jagadeesan et al (US 2005/0059400) teaches SNR (link Margin) takes in account received signal strength and background noise or interference (see page 4, paragraph 0033- lines 7-11).

At the time the invention was made it would have been obvious to a person in ordinary skill in art to modify the method of Kallio (US 2002/0147008) by enhancing quality of service by determining a link margin value as corresponds to the wireless communication link function, at least in part, of received signal strength value. One in ordinary skill in art would have been motivated to do this because SNR may be a better predictor for bit error rate and packet error rate than RSS (see page 4, paragraph 33, lines 11-13 of Jagadeesan et al (US 2005/0059400)).

#### **Allowable Subject Matter**

7. Claims 6-8,12, 20,25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments filed 8/10/95 have been fully considered but they are not persuasive.

Applicant argues, "Neither Kallio nor Ibe describe, mention, illustrate, show or even suggest such the concept of determining future quality of service values, as those references only teach comparing current signal levels with predetermined thresholds to see if it is necessary to perform a hand off. In fact, the present invention permits a handoff point to be projected and estimated with sufficient lead time to allow an orderly and effective handoff from a WLAN to a wide area network (WAN). Such a concern is not addressed in Kallio or Ibe. New independent claim 28 also recites the limitation of

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determining a quality of service level in the future In a communication device capable of operating in both a WGN and a WAN.

In response, it is stated that Palmer disclose the above limitations, "determining a likelihood that the quality of service will have at least a predetermined relationship with respect to the at least one threshold value at a predetermined future time, (refer to fig. 3, and paragraphs 0015, 0024, 0030 and 0030).

**In light of above explanation, arguments by applicant are not persuasive.**

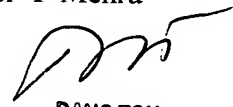
### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Inder P. Mehra whose telephone number is 571-272-3170. The examiner can normally be reached on Monday through Friday from 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Inder Pal Mehra 11/13/05  
Inder P Mehra

  
DANGTON  
PRIMARY EXAMINER